Risk Factors of Infantile Colic

Presented by
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Introduction

• Infantile colic common /uncommon....? common problem in first months of life its prevalence range 5 - 40%

• characteristics………! excessive and inconsolable crying, hyper tonicity, and wakefulness that cluster in the evening.
Modified Wessel criteria 1,2

• Some hypothesis suggested organic or psychological disorder
• Other suggested abnormal gastrointestinal (GIT)dysfunction, allergic problems such as protein intolerance.
  - Dietary factors, maternal smoking and medicine during delivery hypothesis are still to be confirmed.
This Uncertainty along with colic's frequent occurrence, its potential impact on the family, and the absence of an effective cure Highlighted the importance of continued research.

- Putting in mind that infantile colic may be a result of synergistic interaction between biologic and behavioral factor
Aim of the study

The aim of the present study was to assess infantile colic in relation to its predisposing factors including gut micro flora and know impact of maternal diet on infantile colic.
Subject and methods

- This is a **case–control** study that includes two groups.
- This study comprised **200 apparently healthy infants**.
- They were selected from the outpatient Clinic of Children's Hospital, Ain Shams university from November 2010 to May 2012.
- Infants suffering from
  - Acute infections. [e.g. O.M, meningitis...],
  - Severe congenital anomalies
  - Inborn error of metabolism
  - Chromosomal abnormalities
  - Gastrointestinal malformation or surgery,
- Or on antimicrobial therapy were excluded from the sample
Methodology

• According to national research center ethical committee the parent of each infant gave written consent to the inclusion of their infant in the study.

• Careful history taking:
A questionnaire was planned to fulfill the following data

**Infantile data:** name, sex, age in weeks, order of birth, gestational age, history of NICU admission, weight (in kilogram) at birth, weight (in Kilogram) and length (in centimeter) at time of sample taking.
Maternal data:

- **Antenatal history**: History of maternal infection in form of fever or bleeding, PROM, hypertension, gestational diabetes, chronic illness, vitamin intake during pregnancy, chronic exposure to smoking during pregnancy, family history allergy.

- **Natal history** including mode of delivery, type of anesthesia.

- **Postnatal** history including lactation in the first hour, nipple abnormality, lactation difficulty, postpartum infection or hemorrhage, drug intake with lactation.
Cont.

- History of infantile colic:
  - **First** developed,
  - Frequency per day
  - Duration of each episode in minutes
  - Precipitating factors
  - Relieving methods.
Cont.

- **Infant feeding pattern:**

  Type of feeding
  
  (Breastfeed/Formula feed)

  Lactose or sucrose intake

  Herbal intake

  (during the first 6 months)

  Post feeding satisfaction.

  Vomiting / reflux
- Maternal Dietary pattern:
  Check list to obtain qualitative information about the different items of food and beverage consumed by the mother during lactation period.
II- Examination:

*Thorough clinical examination with particular emphasis on:*

- Anthropometric measures; weight in kg and height in cm were plotted against percentiles for age and sex according to Egyptian growth charts.
- Head circumference and Fontanels examination.
- Chest and Heart examination.
- Full abdominal examination, including hernia orifices and genitalia.
- Careful skin examination for signs of vitamin deficiency.
Descriptive data

<table>
<thead>
<tr>
<th></th>
<th>Group I (colicky) n=100</th>
<th>Group II (non-colicky) n=100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean age +/-SD</strong></td>
<td>12.88+/−6.85 weeks</td>
<td>11.41+/−5.5 weeks</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>22 weeks</td>
<td>20 weeks</td>
</tr>
<tr>
<td><strong>No of breast fed infants</strong></td>
<td>56</td>
<td>50</td>
</tr>
<tr>
<td><strong>No of formula fed infants</strong></td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td><strong>Male : Female</strong></td>
<td>60:40</td>
<td>41:59</td>
</tr>
<tr>
<td><strong>NICU admission</strong></td>
<td>21</td>
<td>7</td>
</tr>
<tr>
<td><strong>Term : preterm infants</strong></td>
<td>83:17</td>
<td>93:7</td>
</tr>
</tbody>
</table>
### Comparison between colicky and non colicky infants as regards prenatal maternal data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group I Yes</th>
<th>Group II Yes</th>
<th>$\chi^2$</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes</td>
<td>yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>no</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>5 (5%)</td>
<td>3 (3%)</td>
<td>0.521</td>
<td>0.47</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2 (2%)</td>
<td>2 (2%)</td>
<td>0.000</td>
<td>1.00</td>
</tr>
<tr>
<td>PROM</td>
<td>5 (5%)</td>
<td>4 (4%)</td>
<td>0.116</td>
<td>0.733</td>
</tr>
<tr>
<td>Hypertension</td>
<td>9 (9%)</td>
<td>13 (13%)</td>
<td>0.817</td>
<td>0.366</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>5 (5%)</td>
<td>6 (6%)</td>
<td>0.096</td>
<td>0.756</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>15 (15%)</td>
<td>4 (4%)</td>
<td>7.037</td>
<td>0.008</td>
</tr>
<tr>
<td>Vitamin Intake</td>
<td>64 (64%)</td>
<td>56 (56%)</td>
<td>1.333</td>
<td>0.248</td>
</tr>
<tr>
<td>Exposure to smoke</td>
<td>52 (52%)</td>
<td>33 (33%)</td>
<td>7.386</td>
<td>0.007</td>
</tr>
<tr>
<td>History of paternal allergy</td>
<td>22 (22%)</td>
<td>7 (7%)</td>
<td>9.074</td>
<td>0.003</td>
</tr>
</tbody>
</table>

P $< 0.05$ (Significant) P $> 0.05$ (Non-significant)
Comparison between colicky and non colicky infants as regards lactose/sucrose intake, herbal intake, post feeding satisfy and vomiting/reflux

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group I colicky n = 100</th>
<th>Group II Non Colicky n = 100</th>
<th>$\chi^2$</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no</td>
<td>%</td>
<td>no</td>
<td>%</td>
</tr>
<tr>
<td>Lactose/sucrose intake</td>
<td>49</td>
<td>49</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Herbal intake</td>
<td>72</td>
<td>72</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Post feeding satisfy</td>
<td>73</td>
<td>73</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Vomiting/reflux</td>
<td>15</td>
<td>15</td>
<td>Zero</td>
<td>Zero</td>
</tr>
</tbody>
</table>

P < 0.05 (Significant) P > 0.05 (Non-significant)
Relation between colic and type of food consumed by mother among breast fed infants.

<table>
<thead>
<tr>
<th>Type of food</th>
<th>Group I Yes</th>
<th>Group II Yes</th>
<th>OR (CI) 95%</th>
<th>P value</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tea</td>
<td>51 91%</td>
<td>36 72%</td>
<td>3.889 (1.499-10.092)</td>
<td>0.004</td>
<td>8.507</td>
</tr>
<tr>
<td>Coffee</td>
<td>8 14.2%</td>
<td>2 4%</td>
<td>4.54 (0.988-20.874)</td>
<td>0.036</td>
<td>4.412</td>
</tr>
<tr>
<td>Dairy products</td>
<td>48 85%</td>
<td>33 66%</td>
<td>3.606 (1.524-8.531)</td>
<td>0.003</td>
<td>9.113</td>
</tr>
<tr>
<td>Garlic/onion</td>
<td>47 84%</td>
<td>10 20%</td>
<td>21.143 (8.613-51.901)</td>
<td>0.000</td>
<td>54.986</td>
</tr>
<tr>
<td>Green leaves</td>
<td>38 67.8%</td>
<td>0 0%</td>
<td>2.786 (2.071-3.747)</td>
<td>0.000</td>
<td>60.315</td>
</tr>
<tr>
<td>Banana, strawberry, jam</td>
<td>37 66%</td>
<td>4 8%</td>
<td>25.981 (8.497-79.442)</td>
<td>0.000</td>
<td>48.114</td>
</tr>
<tr>
<td>Cabbage/cauliflower</td>
<td>38 67.8%</td>
<td>6 12%</td>
<td>5.573 (2.152-14.434)</td>
<td>0.000</td>
<td>14.274</td>
</tr>
<tr>
<td>Tuna, sardine, mackerel,</td>
<td>8 14.2%</td>
<td>5 10%</td>
<td>4.895 (1.761-13.604)</td>
<td>0.001</td>
<td>10.524</td>
</tr>
<tr>
<td>Processed meat</td>
<td>33 59%</td>
<td>5 10%</td>
<td>13.00 (4.702-35.943)</td>
<td>0.000</td>
<td>31.694</td>
</tr>
<tr>
<td>Processed food</td>
<td>44 78.5%</td>
<td>8 16%</td>
<td>19.066 (7.669-47.402)</td>
<td>0.000</td>
<td>50.351</td>
</tr>
<tr>
<td>Pickles</td>
<td>37 66%</td>
<td>12 24%</td>
<td>6.443 (2.934-14.148)</td>
<td>0.000</td>
<td>23.651</td>
</tr>
</tbody>
</table>
Figure (1): Percentage of gram –ve anaerobe and lactobacilli positive culture among the two groups
Conclusion

• Infantile colic is more prevalent among preterm infants.
• NICU admission may be a risk factor of infantile colic.
• Family history of atopy may also be a risk factor of infantile colic.
• Maternal exposure to smoke can be a risk factor of infantile colic.
• Neither the mood of delivery nor the type of anesthesia had significant effect on infantile colic in this sample.
Cont.

• Colicky group in the current study displayed no significant difference as regards first hour lactation, nipple abnormality as well as lactation difficulty as a postnatal risk factor proposed for colic.

• On the other hand Vomiting and reflux was significantly higher in colicky infants compared with controls.
• Although the percentage of formula fed infants that develop colic in the first week of life was (47.7%) and second week was (36.4%) which is higher than breastfed colicky infants whose percentages were (41.1%, 14.3% respectively) (p≤0.05)

• We could not prove a protective effect of breastfeeding towards infantile colic
Maternal diet and infantile colic

• This study found significant association between type of food consumed by the mother and colic being higher with garlic and onion consumption (p=0.000)
Regarding Gut Micro-flora

• This study concluded that Difference in the pattern of gut micro flora between colicky and non colicky infants may contribute as a risk factor for infantile colic
• Lactobacilli may have a protective effect on infantile colic
• Further Studies are required to understand etiology and risk factors of infantile colic .!!!!!!!
Finally I’d like to express my gratitude to my Professors who supervised and helped me in this work

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Thank you for your attention

Questions are Welcomed ...